ULYSSES

SCE 10-m RANGING DATA, CONJ. C1/C4

90-090B-10A/10B

THIS DATA SET CONSISTS OF 1 9-TRACK TAPE WHICH IS THE D NUMBER AND 1 3480 CARTRIDGE WHICH IS THE DC NUMBER. BOTH DATA SETS HAS BEEN WRITTEN TO ONE VAX LABELD TAPE. THE D AND C NUMBERS ARE BELOW ALONG WITH THE NUMBER OF FILES AND TIME SPAN AND SUPPORTING DOCUMENTS ARE ENCLOSED.

DD#	DC#	FILES	TIME SPAN
DD109103	DC033100	15	08/07/91 - 09/05/91

90-090B-10A

#Dfqdat;
Date:
Form: DD {check with Ralph that a tape copy exists}
Quantity:
{ add entry for on-line here}

Personnel info;

Dataset Contact:

Type: CO
Title: Dr..
First & middle initial: Michael K.
Last name: Bird
Current affl: University of Bonn
City, State: Bonn, Germany

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Brief Description:

This data set includes differential range delay data, and electron content samples of the intervening solar corona between Ulysses and Earth, at ten-minute intervals from the Ulysses Solar Corona Experiment (SCE) during the first solar conjunction (C1) of the Ulysses mission in the interval of August 7 to September 5, 1991. SCE uses a dual-frequency radio-sounding technique to exploit the dispersive nature of ionized media on the propagation of the two downlinks. The tiny Doppler shift due to plasma moving in and out of the ray path is greater at S-band than at the higher frequency X-band. Similarly, because the group velocity of waves propagating in ionized media is smaller for lower frequencies, the round-trip time of propagation for coded range signals between the spacecraft and the ground station is longer in the S-band than in the X-band.

For the C1 solar conjunction the received frequencies at S-Band and X-band were recorded at a nominal sample time of one per second, and differential range delay data were recorded nominally at intervals of about 10 minutes. These telemetry data are archived at JPL in raw form on Archival Tracking Data Files (ATDF's) after downlink through the NASA Deep Space Network (DSN) and intermdiate processing, after which the total electron content (TEC) of the intervening coronal region between Ulysses and the Earth is determined by extraction of the ranging data from the ATDF files for further processing. The ATDF files also include doppler ranging data which are not included in this data set.

All fully processed ranging data during the Ulysses C1 solar conjunction have been provided in the RANGE_C1.TAB ascii file. This file contains recorded and calculated parameters for date, time (UT - ground received), run and tracking station number, differential range delay in range units (RU), and total or columnar electron content (TEC) in units of "hexems" (10**16 e/sq-mt). Accuracy of the range delay measurement is of order 50 RU. Further details of

the data processing are given in the SCE_DS_C1.TXT documentation file and the references therein. Details on the SCE Experiment are available in Bird, M. K., et al., "The Coronal Sounding Experiment," Astron. and Astrophys. Supp. Ser., 92(2), 425-430, 1992.

Principal on-line access to this data set is provided at NSSDC via Anonymous FTP at anonymous@nssdca.gsfc.nasa.gov in the COHO (Coordinated Heliospheric Observations) directory, or via WWW at the following URL address:

http://nssdca.gsfc.nasa.gov/htbin/htdir/anon_dir/coho/ulysses/radio/sce/

Acknowledgements:

"the principal investigator, Dr. Michael K. Bird of the University of Bonn, Bonn, Germany"

Archive Plan Flag: A
Archiving status flag: C
Archiving Planning/Status:
Arvchiving of similar data files will continue through the Ulysses mission.
Archiving Location: NSSDC
Archiving Organization: NASA
Archive Type: P
Documentation Status Flag: D
State of Supporting Documentation:

The *.TXT file gives a brief but informative description of the experiment and data set, along with references to other works.

Materials for Distribution:

Hard copy of the *.TXT document file from the data set and list of experiment references from TRF.

Bibliographic References:

Sequence Number: 01
TRF ID: B40464-000A

Bird, M. K., S. W. Asmar, J. P. Brenkle, P. Edenhofer, M. Paetzold, and H. Volland, The coronal-sounding experiment, Astron. Astrophys. Suppl. Ser., 92, No. 2, 425-430, Jan. 1992.

Sequence Number: 02
TRF ID: B46249-000A

Woo, R., Detection of low-latitude plumes in the outer corona by Ulysses radio ranging measurements, Astrophys. J. 464, L95-L98, 1996.

Sequence Number: 03
TRF ID: B44564-000A

Woo, R., J. W. Armstrong, M. K. Bird, and M. Patzold, Variation of fractional electron density fluctuations inside 40 Ro observed by Ulysses ranging measurements, Geophys. Res. Lett., 22, No. 4, 329-332, Feb. 1995.

Sequence Number:
TRF ID: ???????? (article submitted for TRF ingest)

Bird, M.K., H. Volland, M. Paetzold, P. Edenhofer, S,W, Asmar, and J.P. Brenkle, The coronal electron density distribution determined from dual-frequency ranging measurements during the 1991 solar conjunction of the Ulysses spacecraft, Astrophys. J., 426, 373-381, 1994.

90-090B-10B

Date:
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Personnel info;

Dataset Contact:

Type: CO
Title: Dr..
First & middle initial: Michael K.
Last name: Bird
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City, State: Bonn, Germany

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Michael K. Bird
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Brief Description:

This data set includes differential range delay data, and electron content samples of the intervening solar corona between Ulysses and Earth, at ten-minute intervals from the Ulysses Solar Corona Experiment (SCE) during the fourth solar conjunction (C4) of the Ulysses mission in the interval of February 23 to March 14, 1995. SCE uses a dual-frequency radio-sounding technique to exploit the dispersive nature of ionized media on the propagation of the two downlinks. The tiny Doppler shift due to plasma moving in and out of the ray path is greater at S-band than at the higher frequency X-band. Similarly, because the group velocity of waves propagating in ionized media is smaller for lower frequencies, the round-trip time of propagation for coded range signals between the spacecraft and the ground station is longer in the S-band than in the X-band.

For the C4 solar conjunction the received frequencies at S-Band and X-band were recorded at time intervals of one second, and differential range delay data were recorded nominally at intervals of about five minutes. These telemetry data are archived at JPL in raw form on Archival Tracking Data Files (ATDF's) after downlink through the NASA Deep Space Network (DSN) and intermdiate processing, after which the total electron content (TEC) of the intervening coronal region between Ulysses and the Earth is determined by extraction of the ranging data from the ATDF files for further processing. The ATDF files also include doppler ranging data which are not included in this data set.

All fully processed ranging data during the Ulysses C4 solar conjunction have been provided in the RANGE_C4.TAB ascii file. This file contains recorded and calculated parameters for date, time (UT - ground received), run and tracking station number, differential range delay in range units (RU), and total or columnar electron content (TEC) in units of "hexems" (10**16 e/sq-mt). Accuracy of the range measurement is of order 50 RU. Further details of the data processing are given in the SCE_DS_C4.TXT documentation file and the references therein. Details on the SCE Experiment are available in Bird, M. K., et al., "The Coronal Sounding Experiment," Astron. and Astrophys. Supp. Ser.,

92(2), 425-430, 1992.

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http://nssdca.gsfc.nasa.gov/htbin/htdir/anon_dir/coho/ulysses/radio/sce/

Acknowledgements:

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Archiving Organization: NASA
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Sequence Number: 01
TRF ID: B40464-000A

Bird, M. K., S. W. Asmar, J. P. Brenkle, P. Edenhofer, M. Paetzold, and H. Volland, The coronal-sounding experiment, Astron. Astrophys. Suppl. Ser., 92, No. 2, 425-430, Jan. 1992.

Sequence Number: 02
TRF ID: B46222-000A

Bird, M. K., M. Patzold, P. Edenhofer, S. W. Asmar, and T. P. McElrath, Coronal radio sounding with Ulysses: Solar wind electron density near 0.1 AU during the 1995 conjunction, Astron. Astrophys., 316, No. 2, 441-448, Dec. 1996.

Sequence Number: 03
TRF ID: B45458-000A

Patzold, M., M. K. Bird, P. Edenhofer, S. W. Asmar, and T. P. McElrath, Dual-frequency radio sounding of the solar corona during the 1995 conjunction of the Ulysses spacecraft, Geophys. Res. Lett., 22, No. 23, 3313-3316, Dec. 1995.

Sequence Number: 04
TRF ID: B46223-000A

Patzold, M., J. Karl, and M. K. Bird, Coronal radio sounding with Ulysses: Dual-frequency phase scintillation spectra in coronal holes and streamers, Astron. Astrophys., 316, No. 2, 449-456, Dec. 1996.